

Meteoroids impact the Moon

Meteoroids impact the lunar surface

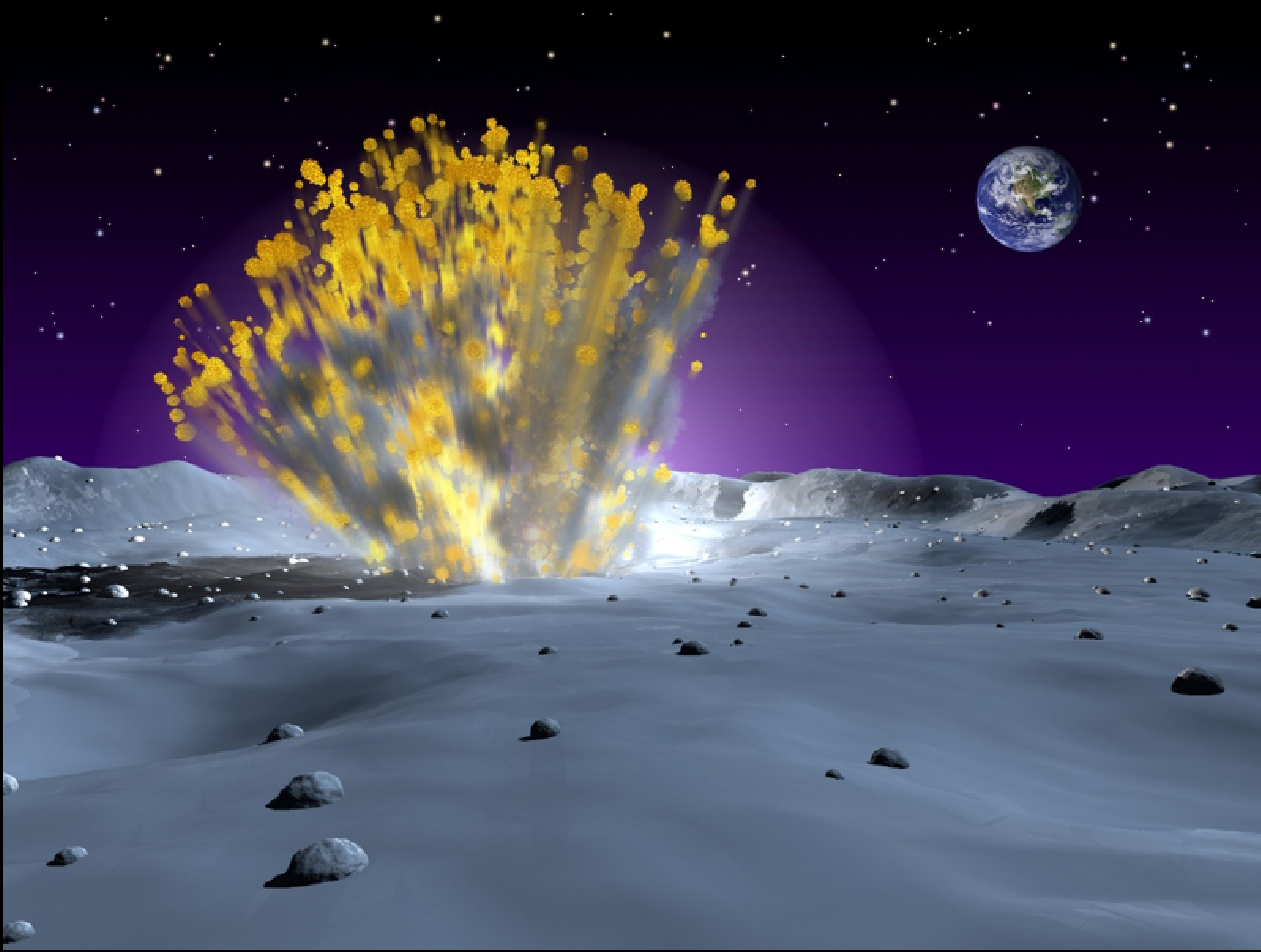


Image credit: NASA

Most meteoroids are broken up by Earth's atmosphere before they reach the ground. The Moon, however, has little-to-no atmosphere to prevent meteoroids from impacting the lunar surface. Upon impact they excavate a crater and generate a plume of debris. A flash of light at the moment of impact can also be seen.

Map of observed impact flashes

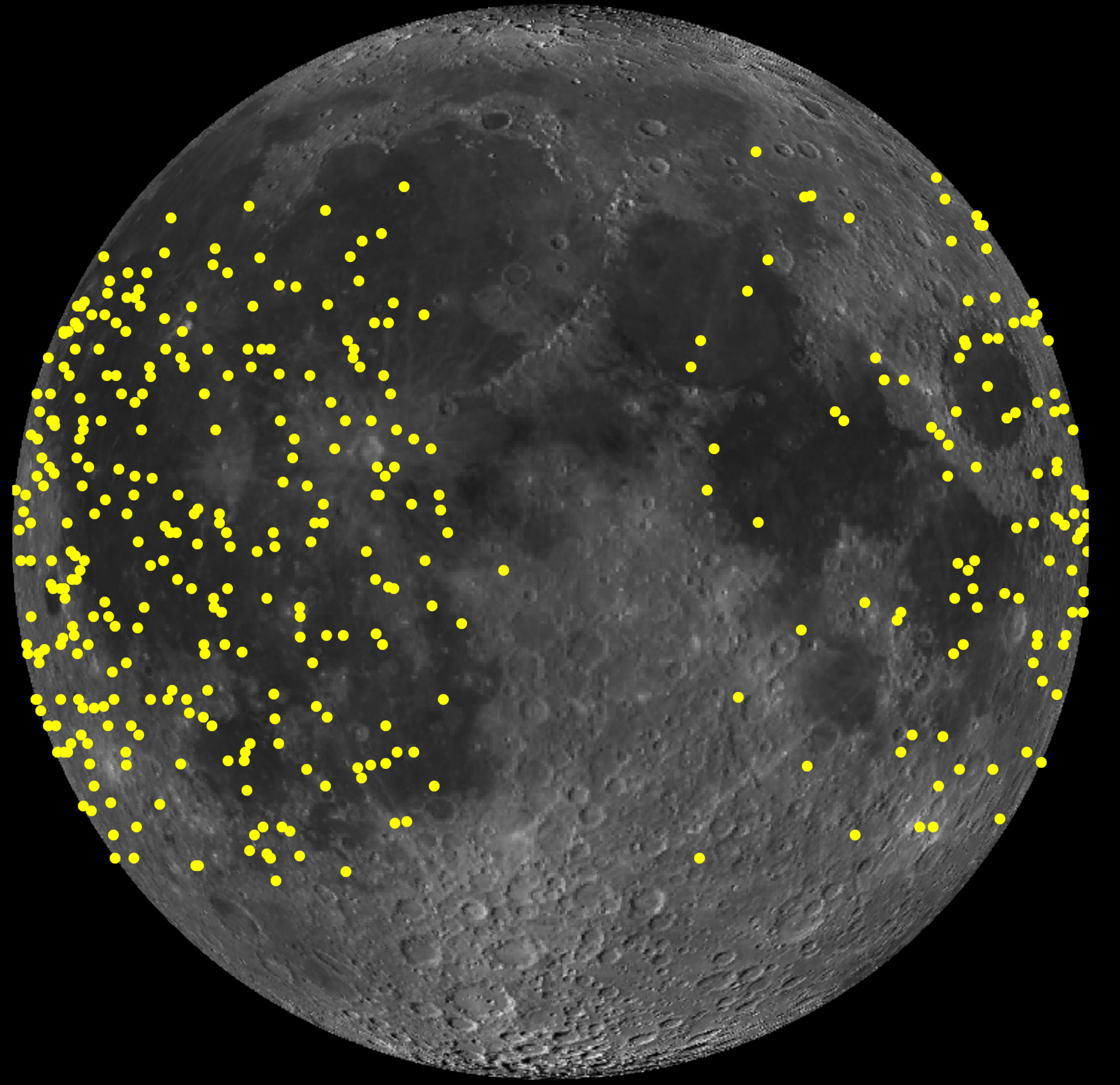


Image credit: NASA MEO

Over 400 impact flashes have been observed by NASA since 2005. This map shows the location of each flash. No observations are made near the poles or center line. On average, one impact is observed every two hours.

Impact flashes are seen with telescopes



Image credit: NASA MEO

Meteoroids striking the Moon create an impact flash observable by telescopes here on Earth. NASA observers use telescopes at the Automated Lunar and Meteor Observatory (ALaMO) to routinely monitor the Moon for impact flashes each month when the lunar phase is right. Flashes recorded by two telescopes simultaneously rule out false signals from cosmic rays and satellites.

Meteoroid impacts create new lunar craters

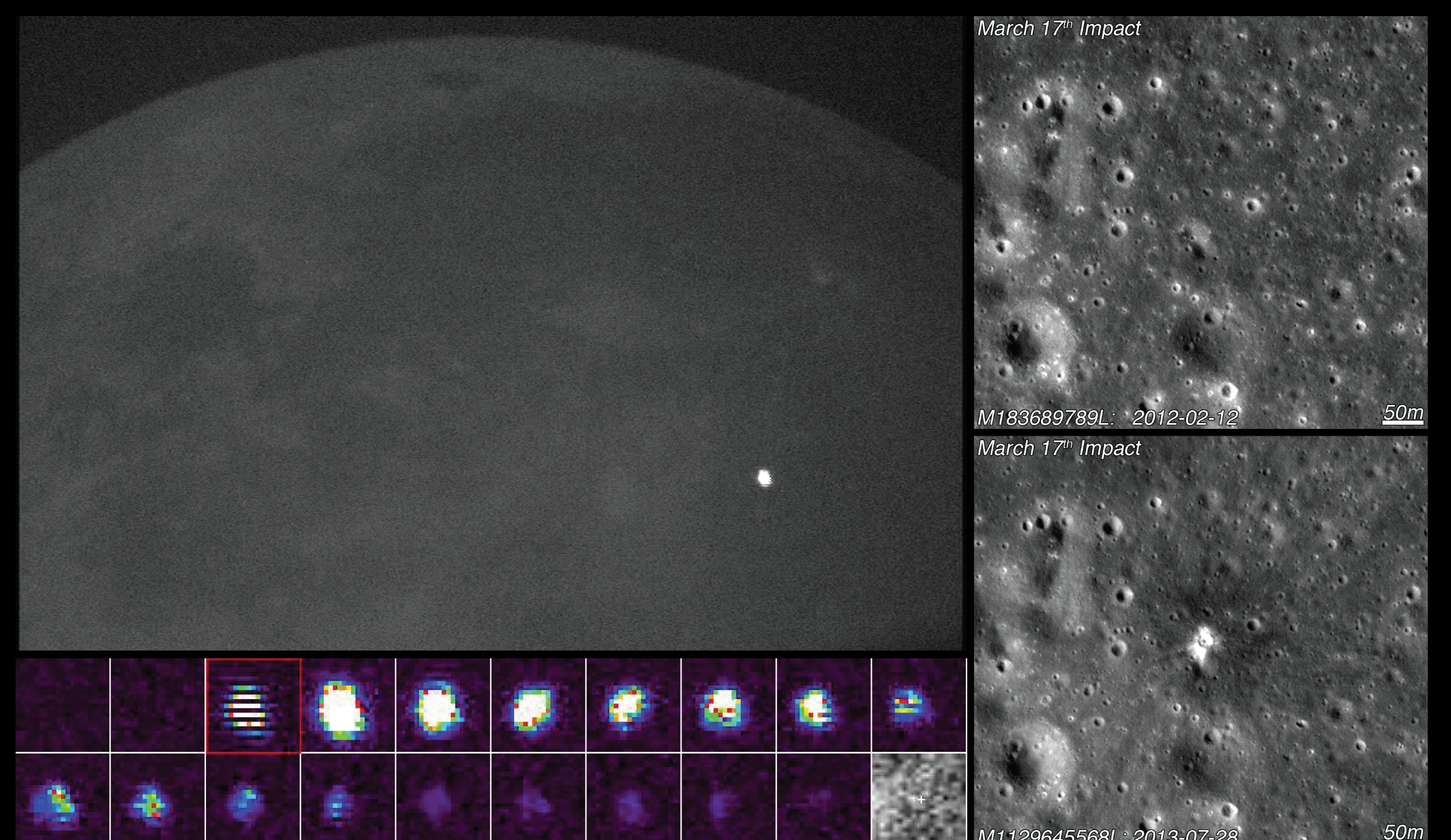


Image credits: NASA/MEO & NASA/GSFC/ASU

The brightest and longest-lasting impact flash was observed in Mare Imbrium on March 17, 2013. The imaging satellite Lunar Reconnaissance Orbiter, in orbit around the Moon, discovered the fresh crater created by this impact. The crater is 60 ft across and was caused by a meteoroid 9 inches in diameter likely traveling at a speed of 57,000 mph!

For more information, visit
<https://www.nasa.gov/offices/meo>

